

REMARKS

The Examiner is thanked for the careful examination of the application. However, favorable reconsideration of the above-identified application is requested in view of the following remarks.

Claims 1-20 are pending, with Claims 1, 6, 7 and 12 being independent.

Claims 6 and 18 are allowable.

Claims 1-5, 7-17, and 19-20 are rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by U.S. Patent No. 5,581,613, hereinafter *Nagashima*, in view of U.S. Patent No. 5,579,452, hereinafter *Ambalavanar*. Applicants assume that the rejection is based on 35 USC 103(a), and not 35 USC 102(b). If this assumption is not correct, please clarify the record.

With regard to claim 1, the Examiner alleges that *Nagashima* discloses all the elements of claim 1 except for the claimed **controller** through which the scan image data and the print image data are exchanged with an external computer *and* the claimed **switch** that, in response to a signal, switches the internal bus between transmission from the image reader to the controller and transmission from the controller to the printing unit.

To overcome this deficiency, the Examiner relies upon *Ambalavanar*. The Examiner alleges that *Ambalavanar* teaches a printing machine 12 that contains a control module 16 that controls scan data from the scanner 18 to the control module as well as print data from the controller 16 to a printer 20, and that the print data and the scan data are *transferred simultaneously* on a Vbus.

However, according to claim 1, the claimed internal bus transmits scan image data generated by the image reader to the controller and transmits the print image

data from the controller to the printing unit. Thus, the internal bus connects both the image reader and the printing unit to the controller through which controller the scan image data and the print image data are exchanged with an external computer.

In contrast to the present invention, *Ambalavanar* does not teach using a bus to connect both the image reader and the printing unit to the controller. As can be seen in Figure 1 of *Ambalavanar*, the scanner 18 is connected to the controller 16 through one bus and the printer 20 is connected to the same controller 16 through a separate bus. Since *Ambalavanar* does not teach a bus to connect both the image reader and the printing unit to the controller, *Ambalavanar* cannot teach the claimed switch that switches the internal bus between transmission from the image reader to the controller and transmission from the controller to the printing unit.

Since the Examiner has already conceded that *Nagashima* does not teach the claimed switch, and as explained above, *Ambalavanar* also does not teach the claimed switch, the two applied references cannot teach claim 1, either separately or in combination.

Claim 1 broadly encompasses that subject matter and is directed to a digital copying machine comprising an image reader that reads an image of an original document and generates scan image data, a printing unit that prints based on print image data, a controller through which the scan image data and the print image data are exchanged with an external computer, an internal bus that transmits the scan image data generated by the image reader to a controller and that transmits the print image data from the controller to the printing unit, a signal generator that generates a signal based on an operation timing of the printing unit, and a switch that, in response to the signal, switches the internal bus between transmission from the

image reader to the controller and transmission from the controller to the printing unit.

In a preferred exemplary embodiment, the internal bus is represented by reference numeral 40 in Fig. 2. According to one aspect of the present invention, it is disadvantageous to pause the printing unit in the middle of printing a page. The timing of transferring the scan image data is not as sensitive. Accordingly, as set forth in each of the claims, the timing of switching the data transfer is based on an operation of the printing unit, not the image reader.

In the Office Action, the Examiner alleges that the signal generator of *Nagashima* generates a signal based on an operation timing, and that the image sync signal would be in synchronization with the printer when the data is intended for printing. However, there is no indication in *Nagashima* that the signal generator generates a signal **based** on an operation timing of the printing unit. The fact that the *Nagashima* printer and the sync signal are synchronized does not mean that the signal is based on an operation timing of the printing unit. *Nagashima* does not indicate what the synch signal is based on. As a result, in *Nagashima*, since the synch signal is not generated based on an operation timing of the printing unit, the transfer of data cannot be optimized around the operation of the printing unit. In other words, in *Nagashima*, the printing unit may be paused at times that are not advantageous. The present invention overcomes this problem by using a signal generator that generates a signal based on an operation timing of the printing unit.

The foregoing argument was presented in the response filed on July 12, 2007. However, the Examiner did not specifically address this argument.

Accordingly, the claims of the present application are now patentable over the applied prior art.

Claims 7 and 12 are allowable for similar reasons as those set forth above with regard to Claim 1.

Claims 2-5, 8-11 and 13-16 are allowable at least by virtue of their dependence from allowable independent claims, and also because they additionally define over the cited document. For example, Claims 2 and 8 recite that the signal generated by the signal generator is a clock signal issued based on an operation timing for each pixel.

Similarly, Claims 3 and 9 recite that the signal generated by the signal generator is a horizontal synchronization signal issued based on an operation timing for each line. In the last response, Applicants argued that portion of *Nagashima* relied upon by the Examiner do not refer to issuing a clock signal based on an operation timing *for each line*. However, the Examiner did not address this argument.

Therefore, should the rejections be maintained, it is requested that it be shown where or how *Nagashima* refers to a line, as recited in the claims, and that it be shown where or how *Nagashima* discloses or suggests issuing a clock signal based on an operation timing for each line.

Claim 14 recites that a synchronization signal is issued on an operation timing for each line. For reasons along the lines of those set forth with regard to Claims 3 and 9, Claim 14 is not disclosed or suggested by *Nagashima*.

Claims 17-20 generally recite that the bus is switched, and switched back again repeatedly and at ***predetermined fixed intervals***. *Nagashima* does not